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LACKLAND'S HOUSE PLANS.

Unfortunately, almost every city gentleman who comes into possession—whether by purchase or otherwise—of a plain country house, from which some honest, well-to-do farmer has just decamped, puzzles his brain first of all, to know how he shall make a "fine thing" of it. My advice to such puzzled gentlemen, in nine cases out of ten, would be—"not to do it."

If the ceilings be low, and the beams show here and there the generous breadth and depth of timber which old-time builders put into their frames, cherish these remembrancers of a sturdier stock than ours; scrub and paint and paper as you will, but if the skeleton be staunch, and no dry rot shake the joints or give a sway to the floors and ceiling,—try, for a few years at least, the moral effect of an old house. It can do no harm to a dapper man from the city. It may teach his wife possibly some of the humilities which she cannot learn on Broadway. With a free, bracing air whistling around the house corners, and here and there an open fire within, low rooms are by no means poisonous; and if the trees do not so far shade the roof as to keep away the fierce outpourings of a summer's sun, and the low chambers carry a stifling air in August, it is only necessary, in many instances, to tear away the garret flooring, and to run up the chamber ceilings into tent-like canopies, with a ventilator in their peak—to have as free circulation as in the town attics. And such tented ceilings may be prettily hung with French striped papers, with a fringe-like border at the line of junction of the vertical with the sloping wall—in such sort that your military friend, if he comes to pass a July night with you, may wake with the illusion of the camp upon him, and listen to such *reveille* as the crowing of a cock, or the piping of a wren.

But a monstrous and intolerable grievance to all people of taste lies in the attempt to set off one of those grave exteriors, at which I have hinted, by some of the more current architectural cockneyisms. Thus, an ancient door, with the dark green paint in blisters upon it, and opening in the middle, perhaps, is torn away to give place to the newest fancy from the sash factories, blazing with red and blue glass. For my

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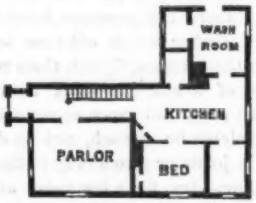
part, I have great respect for a door that has banged back and forth its welcomes and its good byes for half a century; the very blisters on it seem to me only the exuding humors of a jovial hospitality; and all the weather stains are but honorable scars of a host of battles against wind and rain. I would no more barter such an old time door against the newness of the joiners, than I would barter old time honesty against that of Oil Creek, or of Wall Street.

Then again, your cockney must tear away the homely sheltering porch, with its plank "settles" on either side, for some stupendous affair, with columns for which all heathenism has been sacked to supply the capitals.

If renovation must be made, it should be made in keeping with the original style of the house—except indeed change go so far as to divest it altogether of the old aspect. In some farm houses that may be taken in hand for repairs, it might be well even to strain a point in the direction of antiquity, and to replace a swagging door by a staunch one of double-battened oak or chestnut, with its wrought nails showing their heads in checkered diamond lines up and down, and its hinges, worked into some fanciful pattern of a dragon's tail, exposed. Then there should be a ponderous iron knocker, whose din should reach all over the house, and the iron thumb latch—not cast and japanned, but showing stroke of the hammer, and taking on rust where the maid cannot reach with her brick dust. Of course, too, there should be the two diamond lights like two great eyes peering from under the frontlet of the old fashioned stoop. All these, if the house be so ancient and weather stained as to admit of it, will demonstrate that the occupant is among the few who are left in these days of petroleum, who make a merit of homeliness, and cherish tenderly its simplest features. If the house be really weak in the joints, the sooner it comes down the better; but if it has snugness and stiffness and comfort, let not the owner be persuaded of the carpenters to graft upon it the modernisms of their tricksy joinery. I can well understand how a dashing buck of two or three and thirty should prefer a young woman in her furbelows, to an old one in her bombazine; but if the fates put him in leash with an ancient lady, let him think twice before he bedizens her gray head with preposterous frontlets, and puts a mesh of girls' curls upon the nape of her old neck.

I have said all this as a prelude to a little talk about certain changes which my friend Lackland has wrought in his country place—thirty miles away by the New Haven Road. The house he purchased could boast no respectability of age. The height of its rooms was of that medium degree which neither suggested any notion of quaintness nor of airiness. Its entrance hall was pinched and narrow; its stairway inhospitably lean, and altogether its appointments had that cribbed and confined aspect which to one used to width and sunshine, was almost revolting. The wash-room was positively the only apartment below stairs which had a southern aspect. I give his drawing of it, and it is a good type of a great many "small and convenient houses" scattered through our country towns.



"Of course this will never do," wrote Lackland to me, "and yet the skin of the house (as our carpenter calls it) is very good, and I wish to make the needed changes so far as possible, without disturbing the exterior outline of the main building. But how shall I rid myself of that preposterously narrow entrance way in which I can almost fancy Mrs. L., (who is something large) getting wedged on some

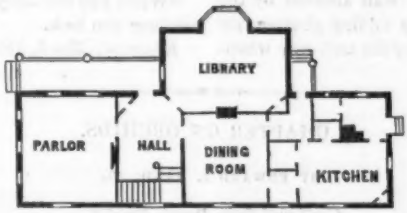
warm day? How shall I throw light into that dismal parlor? You will perceive that along the whole south front there is not a single available window below. Now, half the charm of a country place, to my notion, lies in the possession of some sunny porch upon which the early vines will clamber, and under whose eaves the Phœbe birds will make their nests. I want too, my after dinner lounges at a sunny door, where I can smoke my pipe, basking in the yellow light, as I watch the shadows chasing over the grass. About the stupid little design I send you, there is neither hope nor possibility of this.

"Again, even with a dining room, or library added, and perhaps a kitchen, I shall be still in want of further chamber range, which if I gain (as our carpenter suggests) by piling on a story more, it appears to me that I should give to the narrow front of the house an absurd cock-loft look that would be unendurable.

"Mrs. L. and myself have scored out an incredible number of diagrams—all which have been discussed, slept on, admired and eventually condemned. Sometimes it is the old pinched entrance way that works condemnation; sometimes (on my part) the lack of sunny exposure; and oftenest (on hers) the lack of closets. She insists that no man yet ever planned a house properly on this score. She doesn't see clearly (being deficient in mathematics) why a closet shouldn't be made in every partition wall. She don't definitely understand, I think, why a person should thwack his head in a closet under the stairs. She sometimes (our carpenter tells us) insists upon putting a window through a chimney; and on one occasion (it was really a very pretty plan) contrived so as to conduct a chimney through the middle of the best bed room; and the best scheme of all, to my thinking, positively had the stairs left out entirely.

"In this dilemma, I want you to tell us what can be done with the old shell, so as to make it passably habitable, until we find out if this new passion for country life is to hold good."

Upon this I ventured to send him this little plan of adaptation, which, though not without a good many faults that could be obviated in building anew, yet promised to meet very many of their wants, and gave to Lackland his sunny frontage.



"Here you have" I wrote him, "your south door, and porch to lounge upon, and your south bow window to your library, which if the rural tastes grow upon you, you can extend into a conservatory, covering the whole southern flank of the apartment. The parlor, too, has its two south windows, and although I should have preferred to place the chimney upon the northern side, to the exclusion of the window there, yet it seemed best to make use of the flue already established. The hall is well lighted from the north, and will give room for the hanging of any of your great-aunt's portraits, if you have any.

"There is an objection to traversing the dining room in going from the kitchen to the hall door; but it could not well be obviated, with the existing shell of your house, without reducing the size of the

dining room too much, or (another resource) without increasing largely the dimensions of the hall—throwing the intervening space between it and kitchen into store rooms and making the library do duty for the spread of your table.

"The dining room moreover, having only north exposure you may condemn as dismal. I propose to obviate this, and to give it a cheerful south light by an extravagance which I dare say the architects will condemn, but which will have its novelty and possible convenience.

"The fire places of library and of dining room, are, you observe, back to back. Now I would suggest that the two flues be carried up with a sweep to either side (uniting in the garret) in such sort, that a broad arched opening shall be left above the mantel from one room into the other. This may be draped, if you like, with some tasteful upholstery; but not so far as to forbid a broad flow of the warm light from the bow window of the library; while upon the mantels of even height, you may place a Wardian case that shall show its delicate plumes of fern between your table, and the southern sunlight all winter long. It would moreover be quite possible, owing to the breadth of partition wall afforded by the two flues, to arrange folding shutters for the complete closing of the arch-way whenever desired. For my own part, I love such little novelties of arrangement, which mark a man's house as his own, however much they may put the carpenters to the gape.

"As for the additional chamber room, never think of putting a third story upon so narrow-throated a house, or you will give it an irredeemable gawkyness. If the space be needed, find it by throwing a mansard roof over all, and lighting your cock-lofts with dormer windows. Then paint with discretion; avoid white, and all shades of lilac—the most abominable color that was ever put upon a house;—you can't match the flowers, and don't try, I beg. A mellow brown or a cool gray are the best for the principal surfaces. In the trimmings study narrowly the gradients of color. Let there be no forced contrasts, and no indecisive mingling of tones; above all, remember that with your elevations, you want to aim to reduce the apparent height; work in, therefore, as many horizontal lines of decisive color as your exterior carpentry will allow; give dark hoods, if you will, to your front parlor windows, and let the cornice-finish below your mansard roof reach well down, and carry dark shading.

"When you are fairly in I will come and see how you look.

Edgewood, March, 1865."

A CHAPTER ON ORCHIDS.

BY EDWARD S. RAND, JR.

Continued from March Number.

HAVING now given the general cultural rules which apply to the great mass of Orchidaceous plants, it now only remains for us to describe those plants which require peculiar treatment—and to prescribe the special culture necessary for the successful growth of each.

Sobralia macrantha.—This is a tall-growing semi-terrestrial orchid, with tall reedy stems producing large flowers, which somewhat resemble a Cattleya. They sometimes measure six inches across, and are of a rich purple crimson, but the colors vary much in intensity on the different varieties.

These flowers are produced from the top of the stem, one at a time, and remain in beauty only a few days; but as if in compensation for their almost ephemeral duration, as many as five flowers are frequently

produced in succession on each stem of a strong plant.

This plant is a native of Guatemala and thrives in either the East Indian or Mexican house, blooming during the summer.

It should be planted in a compost of rough fibrous peat, leaf mould, turfy loam, with a slight admixture of silver-sand. All Sobralias have strong asparagus-like roots and require large pots. In their native country they grow in marshy ground on little raised hillocks. During the rainy season they have abundance of moisture, the plants then grow and flower; but during the dry season they often become parched.

To grow them successfully, we must thus regulate our treatment; from March to August give abundance of water; from August to December supply it more sparingly, and from December to March give none at all. These plants are easily propagated by division. There are many species all requiring the same treatment, some with blossoms lasting only a few hours in perfection, and some with white, deliciously fragrant flowers.

Dendrobium speciosum.—A fine species with large creamy white flowers, spotted with crimson. This plant is seldom well grown, because it is kept too hot. It is a native of New Holland, where the air is much drier and cooler than in the tropical regions where epiphytes are usually found. It should be grown in the Mexican House, and the maximum of temperature afforded should be 65° in summer, while in winter a minimum of 45° will not be too cold. Like all Dendrobiums, the plants require a season of rest.

Dendrobium Jenkinsii.—A beautiful dwarf evergreen species from India, only growing two inches high. The flowers are pale buff edged with yellow, and are very large for the size of the plant. The plant should be grown on a bare block of wood suspended from the roof of the house.

Cœlogyne cristata is a lovely plant. Pot in a mixture of peat, half-decayed leaves and silver-sand, and grow in the coolest part of the East India house. The plants bloom in February and should be potted just as they begin to grow.

Cœlogyne, præcox, Wallichiana, maculata lagenaria, &c., form an entirely separate group and are often called Pleione. They are deciduous, forming curiously spotted bulbs. Pot them in loamy peat, leaf mould and sand, and grow on a shelf near the glass in full light. The flowers appear before the leaves out of the same sheath, and when the plants are well grown, are as plentifully produced as in a pot of crocuses.

The leaves should be well grown to ensure good flowers. They need a season of perfect rest and should be planted in small pots.

Barkerias should be grown on blocks without moss in the Mexican house at a maximum temperature of 65° and a minimum of 40°. Give plenty of air, syringe frequently while in growth, but give very little moisture during the resting season. The best species are *Skinnerii, Lindleyana, melanocaulon* and *spectabilis.*

B. elegans, is a very beautiful plant which, if not lost to cultivation, is very rare.

Anæctochilus setaceus.—A lovely terrestrial orchid with variegated foliage, a native of Ceylon. The beauty of the plant is only in the foliage, of which the ground-color is dark velvety green, tinged with a metallic lustre, inlaid with a golden network. A variety (*pictus*) has a broad golden stripe down the centre of the leaf. The plants should never be allowed to bloom as the flowers are inconspicuous.

A. Lobbii, Lowii and *xanthophyllus* are very fine species.

These plants are all of peculiar culture. They should be grown in the shade in the East Indian house under bell-glasses, in shallow pots. Drain the pots well, and pot in a compost of sandy peat, fine chopped sphagnum and silver-sand; elevate the plant a little above the rim of the pot, and press the compost well around it. Then plunge the pan containing the plant into

another several sizes larger and fill in all around with sphagnum; rest the bell glass just within the rim of the larger pot, and frequently wipe the glass lest too much moisture collect upon it. During summer, which is the growing season, the plants should have plenty of water, but during the winter months very little is required, it usually being sufficient to moisten the moss in the outer pan. The season of rest should be short and be during the colder months of winter. All the plants are small, varying from two to six inches in height.

Cypripediums should be in every collection: they are all terrestrial orchids and are easily grown in a compost of turfy loam, fibrous peat and leaf mould, with a little silver-sand in well drained pots. There are some fifty species, many of which, such as *acaule*, *parviflorum*, *calceolus*, *spectabilis* and *arietinum*, are hardy and may be grown in a Rhododendron bed in the open air.

C. insignis, a fine Indian species, will live in a green house, but thrives better in the cooler part of the stove: the sepals and petals of the flower are yellowish green, shaded to reddish brown and spotted with dark brown; the centre petal is tipped with pure white, the lip is greenish orange tinged with rich brown. The flowers remain many weeks in perfection.

C. venustum somewhat resembles the last, but is a smaller plant; the foliage is beautifully marbled.

C. barbatum and *purpuratum* have mottled foliage with sepals and petals brownish purple, lip white with reddish stripes.

C. hirsutissimum, *Javanicum*, *Fairianum*, *Lowii* and *Stonei*, are very fine species.

The following orchids are all of easy culture and are mostly obtainable in this country at moderate prices.

Acineta Barkerii, from Mexico—flowers yellow—basket culture.

A. Humboltii, from La Guayra; flowers deep chocolate, spotted with crimson.

Ærides odoratum.—A fine orchid from India. Blossoms white, stained with pink; exquisitely fragrant; foliage, light green, ornamental.

Æ. affine, *crispum maculosum*, *roseum*, *quinquevulnerum* and *virens* are magnificent species.

All these plants should be grown in the East Indian house, and require but a short season of rest, and should never be allowed to become perfectly dry; they should be grown on blocks or in baskets, but will do well in pots.

Anguloa *Clowesiana*.—Flowers, pure yellow, with pure white lip. From Columbia.

A. Barkerii, from the same country.—Flower, rich brownish orange, with yellowish lip.

A. uniflora, Columbia.—Flowers, white

These plants bloom in summer. Grow in the East India house, but give rest in a cooler house. Pot culture.

Ansellia *Africana*.—A magnificent African orchid. Flowers, pale yellow, spotted with purplish brown, from February to May.

Grow in a large pot, in East India house.

Barkerias.—Before described.

Bletia *hyacinthina*.—A delicate, pretty little plant, with lilac purple flowers. Grow in peaty loam, in green-house or cool house, terrestrial, and should dry off entirely in summer. There are many species of this genus.

Brassia.—A genus of free flowering orchids, from South and Central America and Mexico. Pot culture, with plenty of water in the growing season.

B. Lanceana.—Flowers, yellow, spotted with brown.

B. Lawrenciana.—Flowers, yellow and green, spotted with brown.

B. verrucoea.—Flowers, pale green and white; and

B. Wrayai.—Flowers, yellowish green, spotted with brown, are the best species.

Burlingtonia.—A beautiful genus.

Grow in baskets, with moss, in good heat, with plenty of water during growth.

B. candida, Demerara.—Flowers, white in summer.

B. fragrans, Brazil.—Flowers, white and pink in May.

B. venusta, Brazil.—Flowers, white at different seasons.

CALANTHE.—A large genus, mostly evergreen, of terrestrial orchids, which should be grown in pots, in loam-leaf mould and rotten dung. The most common species is *C. vestita*, which is deciduous, producing spikes of white flowers, with yellow or crimson blotches (according to the variety) in winter.

CATTLEYAS are too well known to need description. The following are the best:

C Acklandeae, from Brazil.—Flowers, chocolate, yellow and rose. Block culture. A rare plant.

C. bicolor, Brazil.—Green and purple. Pot culture.

C. citrina, Mexico.—Bright yellow. Block culture, and should always be tied to the under side, the leaves hanging downward.

C. crispa, Brazil.—Pure white and lake. Pot culture.

C. guttata, Brazil.—Greenish yellow, spotted with crimson; lip white and purple. Pot culture.

C. Harrissoniae, Brazil.—Rose color. Pot culture.

C. labiata, Brazil.—Rose and crimson. Pot culture.

C. Loddigesii, Brazil.—Rose and lilac. Pot culture.

C. Mossiae, La Guayra.—Rosy purple. Pot culture.

C. Skinnerii, Guatemala.—Rosy purple. Pot culture.

C. bulbosa, Brazil.—Light rose. Block culture.

All the cattleyas are fine plants, and worthy of cultivation; during the growing season they do best in the East Indian house, but when at rest should be kept cool. Grow on peat in well-drained pots.

COELOGYNE.—See Ante.

CORYANTHES.—A most extraordinary flower, which words cannot well describe. Grow in baskets in good peat.

C. macrantha, Caraccas.—Flowers, orange yellow, spotted with purple.

C. maculata and *speciosa* are good species.

CYPRIPEDIUM.—See Ante.

DENDROBIUM.—A magnificent genus of Indian orchids. To flower these plants well they should have a good season of rest and growth; give plenty of heat and water during growth, but little of either when the plants are at rest.

Of hundreds of species and varieties, the following are the best and most common:

D. aggregatum.—Pale yellow. Block or pot culture.

D. calceolare.—Orange, with chocolate lip. Pot culture.

D. Cambridgeanum.—Bright orange; crimson blotch. Basket.

D. chrysanthemum.—Bright yellow; dark red blotch. Basket.

D. chysotoxum.—Pale yellow. Pot.

D. Dalhousianum.—Pale lemon, edged with pink, with dark crimson spots. Pot or basket.

D. densiflorum.—Rich yellow. Pot.

D. Devonianum.—Creamy purple and pink; lip rich purple, marked with orange, fringed. Basket.

D. fimbriatum.—Bright yellow, beautifully fringed. Basket.

D Gibsonii.—Rich orange and bright yellow, with dark spots. Basket or pot.

D. JENKINSII.—See Ante.

D. nobile.—Pink and white, with crimson spots. Pots, basket or block.

D. Paxtonii.—Orange, with dark centre. Treat as *D nobile.*

D. Pierardii.—Yellowish white. Basket.

D. sanguinolentum.—Fawn color, violet spots; foliage and bulbs lilac. Basket or pot.

EPIDENDRUM.—This is a very large genus, most of the species of which are of little value to the amateur.

They may all be grown on blocks or in pots in the Mexican house.

E. aurantiacum.—Bright Orange. Guatemala.

E. alifolium.—Greenish yellow; white lip. Guatemala.

E. bicornatum.—Pure white; crimson spots. Guiana.

E. cinnabarinum.—Bright scarlet. Pernambuco.

E. macrochilum.—Brown and white. Guatemala.

E. phœniceum.—Purple and crimson. Cuba.

E. Stamfordianum.—Greenish yellow and brown. Guatemala.

E. varicosum.—Pink and crimson. Mexico.

E. vitellinum.—Orange, scarlet and yellow. Mexico.

GALEANDRA.—A fine genus of terrestrial orchids. Grown in pots, in peat, in East India house.

G. Bauerii.—Pink and purple. Guayana.

G. Devoniana.—Pink and white. South America.

GOODYERA *discolor*, from Brazil.—Grown in a pot, with peat and leaf mould, in either house. Flowers white and yellow; foliage dark evergreen, velvety.

LÆLIA.—A fine genus, requiring the same treatment as *Cattleyas*, which they much resemble, only less heat. They all do well with block culture.

L. acuminata.—White or violet. Mexico. Block.

L. anceps.—Lilac purple. Block.

L. autumnalis.—Purple, rose and white. Mexico. Block.

L. cinnabarina.—Reddish orange. Brazil. Pot.

L. Perrinii.—Purple and crimson. Brazil. Pot.

L. majalis.—Purplish rose. Oaxaca. Block.

LYCASTE.—A class of plants of easy culture, to be grown in pots with peat.

L. aromatica.—Orange; very fragrant. Mexico.

L. Deppii.—White, marked with crimson and yellow. Zalapa.

L. Skinnerii.—White and rose. Guatemala.

MILTONIA.—A beautiful genus. Grow in either house, in pots, with peat.

M. candida.—Yellow, brown and white. Brazil.

M. Clowesiana.—Yellow, chocolate, purple and white. Brazil.

M. spectabilis.—Violet and white. Brazil. The foliage of this species has always a yellow, sickly hue.

ODONTOGLOSSUM.—These plants are best grown in the Mexican house, without much heat or moisture, in pots, with peat and moss.

O. citrosmum.—Pink and white. Guatemala.

O. grande.—Brown, yellow, white and purple. Guatemala.

O. membranaceum.—White and brown. Guatemala.

O. Rossii.—White and purple. Mexico.

All the *Odontoglossums* are worth growing, and are eminent for showy flowers and fine habit. There are many very fine newly discovered species.

ONCIDIUMS.—A large class of showy evergreen orchids. They will thrive in either house, and are easily grown and blossomed.

O. ampliatum.—Large yellow flowers. Guatemala. Pot.

O. Barkerii.—Yellow and brown. Mexico. Pot.

O. bicolor.—Yellow and crimson. Spanish Main. Block.

O. Cavendishii.—Bright yellow. Guatemala. Pot.

O. crispum.—Coppery yellow. Organ Mountains. Block.

O. divaricatum.—Yellow, orange and brown. Brazil. Pot.

O. flexuosum.—Yellow and brown. Brazil. Pot or block.

O. incurvum.—White and red. Mexico. Pot.

O. Lanceanum.—Yellow, crimson and violet. Guyana. Pot.

O. leucochilum.—Yellow and white. Mexico. Pot.

O. papilio.—Brown and yellow. Trinidad. Block.

O. roseum.—Rose color. Honduras. Pot.

O. sphacelatum.—Yellow and brown. Honduras. Pot.

PERISTERIA.—The finest of the genus is the dove plant of Panama (*Espirito santo*).

P. elata.—Grow in rich leaf mould, in peat, in large well-drained pots.

PHAJUS.—A genus of terrestrial orchids, needing rich soil and large pots.

P. grandifolius and *Wallichii* should find a place in every orchid house.

P. albus is a deciduous species, which should have plenty of water during growth, but during rest the plant should be kept perfectly dry, in a cool house, till growth begins.

PHALAENOPSIS.—The finest genus of orchids in cultivation. The flowers are large, white or rose, marked with yellow or red. The plants need the heat of the East Indian house, plenty of water, and only a short season of rest. They do best on a block.

The species are *P. amabilis, grandiflora, rosea, Schilleriana.*

SACCOLABIUM.—A fine genus, resembling *Ærides*, and requiring the same treatment. They are very rare in this country. The best species are

S. Blumei.—Violet and white. Java. Block.

S. guttatum.—White and rosy purple. India. Block.

S. miniatum.—Vermilion. Java. Block.

S. praemorsum. White and lilac. Malabar. Block.

All do well with pot culture.

SCHOMBURGKIA. A genus of large growing shy flowering plants. *S. tibicinis* is the best. Flowers pink, chocolate and white. Honduras. Grow on a block, with plenty of heat and moisture.

SCUTICARIA *Steelii* is a plant with rush-like leaves and large yellow and crimson flowers. Guyana. Grown best on a bit of cork.

SOBRALIA.—See Ante.

SOPHRONITIS.—A class of dwarf plants, with brilliant flowers. Best grown on blocks. with plenty of heat and moisture.

S cernua. Flowers red. Rio.

S. grandiflora.—Flowers bright scarlet. Organ Mountains.

S. violacea.—Flowers violet. Organ Mountains.

STANHOPEA.—A genus of showy plants of easy culture in moss in baskets. There are many species, all worth growing.

S. aurea.—Yellow. Guatemala.

S. grandiflora. White. Trinidad.

S. insignis.—Yellow, spotted with red. Trinidad.

S. oculata.—Pale yellow and purple. Mexico.

S. guttulata.—Pale yellow, spotted with purple. Mexico.

S. eburnea.—Ivory white. Mexico.

S. tigrina.—Pale yellow and chocolate. Mexico.

TRICOPELIA.—A small genus of pretty orchids. Grows in either house, in pots or on blocks.

T. coccinea.—Crimson and white. Central America.

T. suavis.—White and pink. Central America.

T. tortilis.—Brown, yellow and white. Mexico.

VANDA.—A class of scarce Indian orchids, of noble growth and showy flowers. They require the same treatment as *Ærides.*

V. Batemanii.—Yellow crimson and rose.

V. gigantea.—Yellow and chocolate.

V. coerulea.—Delicate lilac blue.

V. Roxburghii.—White and purple.

V. suavis.—White and crimson.

V. teres. Red and yellow.

V. tricolor.—Yellow, crimson, purple and white.

ZYGOPETALUM.—A handsome class of evergreen plants, of easy culture, in pots in peat. They bloom in winter, and are indispensable to a good collection.

Z. Mackayii.—Greenish yellow, brown and lilac. Brazil.

Z. maxillare.—Green, chocolate and rich blue. Brazil.

Z. rostratum.—Green, white and pink. Demarara.

All these orchids we have mentioned may be grown by any one having the appliances described in our former article, and the rich flowers will well repay any reasonable outlay. We very much doubt whether some of the East Indian species can be bought in this country; but there is beauty and variety enough among the South American and Mexican species to well reward any attempt at their culture.

March, 1865.

THE BERRY CULTURE.

BY THE AUTHOR OF "TEN ACRES ENOUGH."

One July morning, when my Lawton blackberries were just ready for the pickers, there came to my humble little farm an intelligent gentleman from Vicksburgh, Mississippi, desirous of seeing how fruit-growing in New Jersey was conducted. He was one of those ardent Union men whose goods had been spoiled by disloyal ones at home, his family broken up, and himself imprisoned and condemned to death, a fate from which he escaped by cutting through his prison-bars at night. Until thus ostracised, he had never visited the North, and was thus wholly uninformed of how we, who produced no cotton, could make our agriculture so remunerative. All that he here saw was new as well as surprising. We walked around and over a six acre field of blackberries; he examining, tasting and wondering. He had never before seen a field of cultivated blackberries. He knew that there were thousands of acres of abandoned cotton and tobacco fields in the South, grown up in tangled masses of wild berries; but few gathered the fruit, as no one prized it, nor was it ever sent to market. The wonder was that it was sufficiently saleable here to warrant the cost and labor which he saw bestowed on mine. He considered it the most picayune employment he had ever known to be undertaken. It was neither corn nor cotton—all the agriculture he had ever seen—and, therefore, it must be a small business.

Still, he condescended to inquire if such agriculture paid—if there was a market for the vast crop before him—who in the world bought it, where it was sold, and whether the thing could not be overdone? I told him that my six acres produced an average of $1,000 per annum; that the great canning establishments in the cities had repeatedly offered to buy the whole crop, and that I was seriously contemplating an increase of my plantation. The figures surprised him, and he thought they made some approach even to cotton: for, in his small circle of experiences, cotton was the standard for all other values. He began to comprehend how it was that Northern horticulturists were thriving even upon ten acres; that it was by seizing upon those easily-cultivated fruits, which in other sections were wholly neglected, and not only ministering to the public appetite, but stimulating it to increased indulgence. When I told him that some neighbors, within a few miles of me, had been much more successful than myself; that one of them took annually $1,000 from only two acres of blackberries, he could see that the business of producing such hitherto neglected fruits was worth pursuing, so long as the public called for them.

These discrepancies in crops are sometimes difficult to be explained. By the last annual report of the West Jersey Fruit Grower's Association, it appears that in the four townships of Burlington, Beverly, Chester and Cinnaminson, in Burlington County, there were 488 acres of bearing strawberries under cultivation in 1864. They produced 27,924 bushels of fruit, which produced $164,633 60. The average per acre was 58½ bushels, and the average price nearly $6 per bushel. There can be no doubt that the foregoing figures do not include more than half the product of these four townships, as many growers keep no correct memoranda of their crops, while many others are unwilling to furnish particulars. An instance may be cited of a very successful strawberry grower in one of these townships, who, in 1863, produced 1,100 bushels from fourteen acres of ground. His neighbors endeavored to ascertain from him what were his profits, but he was mute. One, more curious than the others, went to his New York agents and obtained the amount of his sales, and then going into a calculation of his expenses, they satisfied themselves that the profit from his fourteen

acres amounted to $3,000. It may be safely assumed that these four townships received, in 1864, at least $300,000 for strawberries.

They produced, the same year, 9,181 bushels of blackberries, averaging $4,80 per bushel, and amounting to $44,068,80. This is an average of a trifle over 50 bushels per acre. But the whole crop may be set down at double the figures reported, for reasons already stated. An acre yielding 50 bushels would thus produce $240. But one gentleman, in one of the townships named, sells $1,000 worth from two acres, or more than double the average of the four. This product is undeniable, as his neighbors are observant of his doings, and he makes no secret of his success. How is this superior crop to be accounted for, or why do not all produce crops equally good? Soil and situation, as well as culture, have much to do with the question, but the controlling agency appears to be heavy manuring. The blackberry is a gross feeder, and, probably, cannot be killed by excessive manuring—at least no such instance has come within my observation. The gentleman referred to feeds his plants well, and that is the prime secret of his success. There is near me, probably, a half acre of blackberries, planted some four years ago in what had been a hog-yard for at least twenty years. The excessive richness of the soil causes the plants to throw up immense canes, which are annually loaded with berries of unequalled size. Manure, also, with cleanly cultivation, was the secret by which $3,000 were realized from fourteen acres of strawberries. One grower of the blackberry, in Burlington County, now has 15,000 gallons of wine in his cellars, the product of that fruit.

The averages, per acre, above given, are manifestly far behind what they ought to be, and hence the limited supply which reaches market. Why is this so? Crops can undoubtedly be trebled. The President of the Association has raised seventy bushels of strawberries on the third of an acre, and a premium crop, some years ago, raised on twenty rods of ground, yielded 1,052 quarts, or at the rate of 263 bushels per acre. The President says: "It is interesting to inquire whether these crops were merely accidental, or can as good be grown again? Was there a combination of favorable circumstances, and, if so, what were they? Here is a subject worthy of investigation."

Returning to the blackberry. Its hardiness and productiveness are truly marvellous. Mr. Parry says that he has had them growing on the same ground over ten years without any indications of depreciation, but rather improving. On ten acres of thin land, from which the sand formerly drifted, like clouds before the wind, he produced, in 1862, 650 bushels of fruit, while the following year the same land yielded 700 bushels, and the next year 800. Counting these up at $3 per bushel, who can say, with propriety, that ten acres are *not* enough?

I have been repeatedly told by farmers, and especially by farmers' sons, such as had no faith in the berry culture, that they could find larger and better blackberries than the Lawtons in every hedge-row in the township. I have challenged them to produce them, promising a reward, but none have been forthcoming. Letters from the South, written before the rebellion, have described similar prodigies. One of these I obtained from Georgia, and a second from Alabama. They were taken by careful hands from the huge old fields that abound in those regions, having been marked while in bearing. Both were described as being superior to anything then known. Both were carefully planted and attended to as pets. The Georgia berry proved to be a good one, but far inferior to the Lawton. The Alabama plant was a total failure. Its fruit was smaller than the smallest pea. Whether these plants were depreciated by change of soil and climate, it would be difficult to say. But the search after novelties continues. Seedlings have been annually planted during many years, but so far with no encouraging result. The new and better berry is yet to come.

CULTURE OF THE ROSE.

BY FRANCIS PARKMAN, JAMAICA PLAIN, MASS.

SOIL AND SITUATION.

The Rose requires high culture. This belle of the parterre, this "Queen of Flowers," is a lover of rich fare, and refuses to put forth all her beauties on a meagre diet. Roses, indeed, will grow and bloom in any soil, but deficient nourishment will reduce the size of the flowers and impair the perfection of their form. Of all soils, one of a sandy or gravelly nature is the worst; while on the other hand, a wet and dense clay is scarcely better. A rich, strong, and somewhat heavy garden loam, abundantly manured, is the soil best adapted to all the strong-growing roses; while those of more delicate growth prefer one proportionably lighter.

Yet roses may be grown to perfection in any soil, if the needful pains are taken. We will suppose an extreme case: The grower wishes to plant a bed of roses on a spot where the soil is very poor and sandy. Let him mark out his bed, dig the soil to the depth of eighteen inches, throw out the worst portion of it, and substitute in its place a quantity of strong, heavy loam,—rotted sods, if they can be had, will be an excellent addition; and so, also, will decayed leaves. Then add a liberal dressing of old stable manure—that taken from a last year's hot-bed will do admirably. It is scarcely possible to enrich too highly. One-fourth manure to three-fourths soil is not an excessive proportion. Now incorporate the whole thoroughly with a spade, level the top, and your bed is ready.

Again, we will suppose a case, equally bad, but of the opposite character. Here the soil is very wet, cold and heavy. The first step is to drain it. This may be done thoroughly with tiles, after the approved methods; or, if this is too troublesome or expensive, simpler means may be used which will, in most situations, prove as effectual. Dig a hole about five feet deep and four feet wide at the lower side of your intended bed of roses; in this hole place an inverted barrel, with the head knocked out; or, what is better, an old oil cask. In the latter case, a hole should be bored in it, near the top, to permit the air to escape. Fill the space around the cask or barrel with stones, and then cover the whole with earth. If your bed is of considerable extent, a drain, laid in stone or tile, should be made under or beside the bed, at the depth of three feet, and so constructed as to lead to the sunken barrel. Throw out, if necessary, a portion of the worst soil of the bed, substituting light loam, rotted leaves, and coarse gritty sand. Then add an abundance of old stable manure, as in the former case.

In the great majority of gardens, however, such pains are superfluous. Any good garden soil, deeply dug, and thoroughly enriched, will grow roses in perfection. Neither manure nor the spade should be spared. Three conditions are indispensable—sun, air, and exemption from the invasion of the roots of young growing trees. These last are insidious plunderers and thieves, which invade the soil and rob its lawful occupants of the stores of nutriment provided for them.

A rose planted on the shady side of a grove of elm or maple trees is in one of the worst possible of situations. If, however, the situation is in other respects good, the evil of the invading roots may be cured for a time by digging a trench, three feet deep, between the trees and the bed of roses, thus cutting off the intruders. The trench may then be filled up immediately, but, if the trees are vigorous, it must be dug over again, the following year. It is much better to choose at the outset, an airy, sunny situation, at a reasonable distance from growing trees.

PLANTING.

Roses may be planted either in spring or in autumn. In the Northern States the severity of the winter demands some protection when planted in autumn for all except the old, hardy varieties. Plant as early as possible, that the roots may take some hold on the soil before winter closes. October, for this reason, is better than November. The best protection is earth heaped around the stem to the height of from six inches to a foot. Pine, cedar, or spruce boughs are also excellent. When earth alone is used, the top of the rose is often frost-killed, but this is usually of no consequence, the growth and bloom being only more vigorous for this natural pruning. Dry leaves heaped among or around the roses, and kept down by sticks or pieces of board, or by earth thrown on them, are also good protectors. In spring, plant as early as the soil is in working order, that is to say, as soon as it is dry enough not to adhere in lumps to the spade.

In planting, prune back the straggling roots with a sharp knife, but save as many of the small fibres as possible. If you plant in spring, prune back the stem at least half-way to the ground; but if you plant in autumn, by all means defer this operation till the winter is over. The ground around autumn planted roses should be trodden down in the spring, since the plant will have been somewhat loosened in its place by the effect of frost, but this treading must not take place until the soil has become free from excessive moisture. Budded roses require a peculiar treatment in planting, which we shall describe when we come to speak of them.

PRUNING.

Next to soil and situation, pruning is the most important point of attention to the rose-grower. Long treatises have been written on it; describing in detail different modes applicable to different classes of roses, and confusing the amateur by a multitude of perplexing particulars. One principle will cover most of the ground:—*Weakly growing roses should be severely pruned; those of vigorous growth should be pruned but little.* Or, to speak more precisely, *Roses should be pruned in inverse proportion to the vigor of their growth.*

Much, however, depends on the object at which the grower aims. If he wishes for a profusion of bloom, without regard to the size and perfection of individual flowers, then comparatively little pruning is required. If on the other hand, he wishes for blooms of the greatest size and perfection, without regard to number, he will prune more closely.

The pruning of any tree or shrub, at a time when vegetation is dormant, acts as a stimulus to its vital powers. Hence, when it is naturally vigorous, it is urged by close pruning to such a degree of growth that it has no leisure to bear flowers, developing instead, a profusion of leaves and branches. The few flowers which it may produce under such circumstances, will, however, be unusually large.

The most vigorous growers among roses are the climbers, such as the "Boursaults" and the "Prairies." These require very little pruning; first, because of their vigor, and secondly, because quantity rather than quality of bloom is asked of them. The old and dry wood should be cut wholly away, leaving the strong young growth to take its place, with no other pruning than a clipping off of the ends of side-shoots and a thinning out of crowded or misshapen branches. In all roses, it is the young, well-ripened wood that bears the finest flowers. Old enfeebled wood, or unripe, soft, and defective young wood should always be removed.

Next in vigor to the climbers are some of the groups of Hardy June Roses—such, for example, as those called the Hybrid China Roses. These are frequently grown on posts or pillars, in which case they require a special treatment, to be indicated hereafter We are now supposing them to be grown as bushes in the garden or on the lawn. Cut out the old wood, and the weak unripe and

sickly shoots, as well as those which interfere with others. Then shorten the remaining stems one-third, and cut back the side-shoots to three or four buds. This is on the supposition that a full mass of bloom is required, without much regard to the development of individual flowers. If quality, rather than quantity of bloom is the desideratum, the pruning, both of the main stems and of the side-shoots, must be considerably shorter.

Roses of more moderate growth, including the greater part of the June, Moss, Hybrid Perpetual, and Bourbon Roses, require a proportionably closer pruning. The stems may be cut down to half their length, and the side-shoots shortened to two buds. All the weak-growing roses, of whatever class, may be pruned with advantage even more closely than this. Some of the weak-growing Hybrid Perpetuals grow and bloom best when shortened to within four or five buds of the earth. The strong growing kinds, on the contrary, if pruned thus severely would grow with great vigor but give very few flowers.

The objects of pruning are three-fold. First, to invigorate the plant. Secondly, to improve its flowers; and, Thirdly, to give it shape and proportion. This last object should always be kept in view by the operator. No two stems should be allowed to crowd each other. A mass of matted foliage is both injurious and unsightly. Sun and air should have access to every part of the plant. Six or seven stems are the utmost that should be allowed to remain even on old established bushes; and these as before mentioned, should be strong and well ripened, and should also be disposed in such a manner that when the buds have grown into shoots and leaves the bush will have a symmetrical form. In young bushes three or even two good stems are sufficient.

Pruning in summer, when the plant is in active growth, has an effect contrary to that of pruning when it is in a dormant state. Far from increasing its vigor, it weakens it, by depriving it of a portion of its leaves, which are at once its stomach and its lungs. Only two kinds of summer pruning can be recommended. The first consists in the removal of small branches which crowd their neighbors and interfere with them; the second is confined to the various classes of Perpetual Roses, and consists merely in cutting off the faded flowers, together with their shoots on which they grow, to within two buds of the main stem. This greatly favors their tendency to bloom again later in the summer.

When old wood is cut away it should be done cleanly without leaving a protruding stump. A small saw will sometimes be required for this purpose, though in most cases, a knife, or what is more convenient, a pair of sharp pruning-shears will be all that the operator requires.

(To be continued.)

THE NEW ERA IN GRAPE CULTURE.

BY GEORGE HUSMANN.

In the February No. of the Horticulturist, I find an article by my friend F. R. Elliott, of Cleveland, Ohio, which, in many respects, evidently hits the nail on the head, in grape culture. While I cannot concur in saying that *all* is bosh which has been said about bone-dust, animal manure, preparing the soil, &c., I still think that the whole system, as insisted upon by Dr. Grant, Mr. Mead, and others, is not "Grape growing made easy," as it ought to be made to suit the masses, but rather "Grape growing made difficult," and, therefore, will not suit the demands of the age. Let us look calmly and coolly at the facts before us, and try to find what *will* suit.

It is now about eight to ten years since that a new impulse was given to grape culture by the discovery that we possessed varieties of grapes less subject to disease, and in many respects superior in quality to the old standard varieties, the Catawba and Isabella. People found out that they gave surer crops and of higher value than the old varieties; and forthwith commenced the malady which is now so widely spread, and which we know under the name of grape fever, or, as others have it, grape on the brain! People began to believe there was a fortune in every new grape; and found a number of kind gentlemen willing and generous enough to gratify the thirst of something new, by raising varieties from seed, with and without merit, and sell them at high figures, as a special favor, of course.

It is a well proven fact that we have varieties adapted to certain localities and soils, which will give in such locations sure crops every year; and some few varieties seem to have a happy facility of adapting themselves to almost any soil. We have also found by experience, which in such, as in all other cases, is the mother of wisdom, that one variety may fail altogether on a certain soil, where another variety will flourish and thrive remarkably well. Thus we found, as an example, that our Southern stony hill-sides, where the Catawba got sunburnt and scorched every summer, the Norton's Virginia and Herbemont came to greater perfection, and were always fresh and green, whereas the Herbemont did not succeed in our deep clayey loams, where the growth was too rank; and it never fully ripened its wood, yet there the Concord, and in a certain measure the Catawba, succeeded well. A close observation of these facts, obvious to everybody, and of the different habits of the different varieties, first set me to thinking whether different kinds did not also need different preparation of soil. I observed that the Concord made its principal roots near the surface, while the Catawba and Norton's Virginia, to a certain measure, went down with their roots into the subsoil. So far, all our grape growers had concurred that the only thorough preparation of the soil was by trenching two or three feet deep, and reversing the soil; that is, bring the subsoil to the surface, and the surface earth to where, as they thought the roots of the vine ought to be deep down. This method, of course, necessitated deep planting. The idea struck me that it was somewhat unnatural to bury the grape vine, perhaps the most sun-loving of all our fruit plants, with its roots deep down in the cold subsoil, beyond the influence of sun and air. I began to doubt the necessity of deep trenching and planting, and determined to try a different method.

I was then about to plant a new vineyard on a piece of rough forest soil, newly cleared. Instead of trenching with the spade at a cost of, say $120.00 per acre, I took a large breaking plough with four yoke of oxen, and made furrows as deep as I could get them, say twelve inches. I had two men to follow the plough with axe and grubbing hoe, to cut away the large roots whenever they obstructed the way; and had a subsoil plough with two yoke of cattle to follow in the same furrow, which loosened the soil say ten inches deeper, making in all a depth of tilled soil of from twenty to twenty-two inches. Six men with six yoke of cattle thus finished about an acre per day, at a cost of about $25.00. The reader will perceive that this left the soil almost in its natural position instead of reversing it as is the case in trenching. Now for the planting: I concluded that the plants, if they *must* have their roots deep down, would find their own way there after I had mellowed and stirred the soil; I therefore thought I would not plant deeper than ten inches. This I did, much to the disgust of my wise neighbors, who shook their heads and prophesied total failure. But, lo and behold! my vines did *not* fail, but grew lustily, produced well, and the vineyard thus easily prepared is now one of the most thriving, healthy, and productive

in the whole neighborhood. The yield of one-third of an acre of this vineyard I have given in your February number, and I think there will be very few, even if they prepared and manured according to Grant, Mead & Co., which have produced better results.

Now for the after treatment of my vines. The first summer I do nothing with them but keep them clean and the ground stirred up, especially in dry weather. I do not tie them up; I do not pinch off laterals; on the contrary, I allow them to lay on the ground, encourage the growth of laterals which makes the wood much stouter and more stocky, and in the month of July I summer layer the young plants, and generally get from five to seven good layers from each of them, which pays for all the labor the first year, and generally gives a handsome profit besides. In the fall I cut back to two or three buds, as I intend to raise two or three canes the next summer. I now have my trellis made during the winter; I simply take rough posts, if cedar can be had that is best, if not, oak or some other durable timber; these are made seven feet long and three inches in diameter, I put them two feet into the ground, boring holes with a post-hole auger, and nail to them three rough horizontal laths, one, eighteen inches above the ground, the second, eighteen inches above that, and the highest two feet above the second, at the top of the trellis. I make them about one inch broad and half an inch thick. Three middling stout wires stretched along at the same distances will answer just as well, are more durable, and I am inclined to think cheaper. To these I tie the vines, in the second year they will, if cut back to two or three eyes, make two to three shoots, according to their strength. One or two of these I layer again, but the strongest I had up the trellis; and when it has grown about three feet I pinch off its top; this will force the laterals into stronger growth; I leave about four of them to grow unchecked, and they will generally make very respectable canes. These, in next autumns's pruning, I shorten in as I would a peach tree, say to from four to six buds each, and *they* will produce the fruit the next summer. The other canes which were layered I cut back to, say two buds each, to grow young wood from the next summer, which I then treat in a similar manner, leaving one cane to grow from each spur, which is treated precisely like the one the second summer. I do not layer any more now, but grow fruit and wood alone. By this very simple process I make my vineyard pay expenses, and more, from the first year on; I keep my vines well cultivated, for I can afford to do it as they pay me all the time, and, rest assured, they will bear as fine fruit as when raised on carefully trained arms, with a perpendicular lath each foot on the trellis. I leave it to the reader to decide which they will follow. An acre of Concord vines thus costs, say $150 for plants, $50 for preparation of soil and planting, $150 for trellis, total $350. The layers pay for the labor, plants, and trellis the first two years, and generally pay a handsome profit besides.

Your readers will now begin to see how immensely we are in advantage at the present day over those who followed grape growing formerly. Then, trenching, planting, plants, &c., cost about $300, trellis, on Dr. Grant's plan, say $250 per acre, $550, with no returns the first two years, and the following years, with a return, at the then prices of wine, diseases with the Catawba and Isabella, about $250 to $300 per acre per year. Now, according to my plan, the vineyard pays its way from the first year on, and with a return the third and all following years, of the Concord and Norton's Virginia, of from $1,000 to $1,500 per year. Now we have sure crops; then there was no security, as a few days of mildew and rot could sweep away nearly all. Now we have varieties adapted to every climate and soil, for where one will not succeed the other will.

But I am afraid I have already complete-

ly exhausted the patience of your readers by my talk about the new era in grape culture. They are facts, however, not fiction, I can prove it all. Add to this, that the best of grape lands can be had here at from $6 to $10 per acre, and you need not be surprised if we cannot raise vines enough to meet the demand, and Missouri will be one of the grandest of the grape growing states. If your readers should not be entirely weary of my "grape growing made easy" they need but intimate the desire to hear more and another dose is at their service.

Hermann, Mo., Feb. 20, 1865.

WHAT RELATION DOES COLOR HOLD TO THE CONSTITUTION OF PLANTS?

BY DR. J. STAYMAN, LEAVENWORTH, KANSAS.

THAT color holds some important relation to the vegetable kingdom may be seen from its general brilliancy in healthy growth and its diminished intensity in disease, and the various changes produced upon it by cultivation, climate, season, and soil.

Color not only holds a relation to the *state* or *condition* plants are in, but to their constitution, vitality, hardiness and growth. This may be proved by observation and demonstrated by experiment. Some plants are more hardy than others of the same species (other conditions being equal). This has been ascertained to be in proportion to the amount of heat the plants absorb which is their conducting or electrical power. In other words, the hardiness, vitality and growth of plants depend upon their positive electrical force and the intensity of this state is in harmony with their color, which is in proportion to the amount of heat absorbed, or their conducting power, which has been found to be in the following order: black, brown, green, red, yellow, and white. The black representing the positive state and that which has the greatest absorbing power, and the white representing the negative state, which has the least absorbing and conducting power; and the intermediate colors holding the same relation in like proportion. This theory has been demonstrated by collecting the most hardy and tender varieties from various places, with their known peculiarities, and growing them in close proximity to each other, under like conditions in widely different localities, noting accurately their growth, vitality, constitution, hardiness, and shade of color, and the effects produced by climate, location, soil, and the extreme and sudden variations of temperature. To illustrate this subject more fully, we have classified some of the varieties (which may be interesting to the cultivator and observer, and may prove of much value to the inexperienced in selecting varieties for health and hardiness). The following list of Apples we have fully tested by years of experience to be more hardy than the generality of those in cultivation, they having rather dark colored bark, foliage, and fruit.

SUMMER APPLES.

Carolina Red June,	Early August,
Franklin June,	Zoar Benoni,
Red Astrachan,	Early Joe,
Hoosier Red June,	Early Red,
Fourth of July,	Daniel,
Early Juneating,	Early Sweet.

FALL APPLES.

Autumn Strawberry,	St. Lawrence,
Duchess of Oldenburg,	Fameuse,
Herfordshire Red Streak,	Republican,
Fall Wine Sap,	King (Southern).

WINTER APPLES.

Sweet Wine Sap,	Campfield,
Red Seek-no-further,	Ben Davis,
Hartford Sweeting,	White Pippin,
Red Russet,	Lady Apple,
White Winter Pearmain,	Male Carle,
	Wine Sap,
Willow Apple,	Holly,
Sciota Beauty,	Royal Red.
Oskaloosa,	

The White Pippin and White Winter Pearmain might be thought to be exceptions to the general rule, but a close examination will fully sustain us, though they might have been classified with the following list for hardiness, yet they have the color of the former:

SUMMER APPLES.

Benoni,	Summer Pearmain,
Hocking,	Keswick Codlin.

FALL APPLES.

Lowell,	Fall Wine,
Monarch,	Northern Sweet.

WINTER APPLES.

Jonathan,	Rawle's Jennet,
Willow Twig,	Carthouse,
Limbertwig,	Canada Red,
Talman's Sweet,	Fulton,
Yellow Bellflower,	Red Bellflower.

The Yellow Bellflower, Lowell, Fulton, and Keswick Codlin appear to be exceptions to the rule, they having rather light colored fruit, yet possessing the vitality and hardiness of the others. All the above have strong electrical power, and are in a positive state compared with the following varieties:

SUMMER APPLES.

White Juneating,	May Apple,
Summer Bellflower,	Pa. Oats Apple,
Early Ripe,	Weakley's Summer

FALL APPLES.

Lyscom,	Peach Pond Sweet,
White Spice,	Sweet Yellow Butter.
Superb Sweet	
Orange Apple,	

WINTER APPLES.

Ortley,	Yahoola,
Belmont,	Willfongs,
Hooker,	Buckman,
Shockley,	Rickman,
Nickajack,	White Vandevere,
Kittageskie,	Sweet Vandevere.

This list is deficient in absorbing and conducting power, they having light-colored bark and foliage, and rather light-colored fruit, and consequently in a negative state and are not hardy.

The same law holds good with the grape. The Clinton, Oporto, Concord, Hartford Prolific, Norton's Virginia, Franklin, Native Hamburg, Amee, and Osee, are varieties which are in a positive state, and possess great absorbing and conducting force, and consequently, are healthy and hardy, having dark foliage and fruit. While the Rebecca, Clara, Allen's Hybrid, Maxatawney, Anna, and Cuyahoga, represent the negative state and have deficient absorbing power, having light-colored fruit and foliage and are not hardy. The Cassady and Taylor's Bullit appear to be exceptions to this class, they having greater hardiness than the rest, and have a more positive character, but not equal to the first list. The Catawba, Diana, and Roger's No. 1, and all of this class having their color, are intermediate, partaking of the character of both, possessing neither the hardiness and constitution of the first nor the debility and uncertainty of the last, and will never withstand the vicissitudes of this climate. This is corroborated by the failure of the Catawba, and the uncertainty of the Diana, and the various conflicting statements of Roger's No. 1. Even the far-famed Delaware does not possess sufficient of the positive character to be certain of success when fully tested by extensive cultivation; here and in Missouri we have some misgivings upon the subject.

The same law holds good with the flowering plants; where will we find a *white* rose in any of the classes equal in health, vigor, and hardiness, to those of a dark color of

the same class? Where will we find a white Dahlia, Peona, or Verbena, or any flowering plant, equal in hardiness, constitution, and durability, to those of dark color?

The same law holds good in the vegetable department. Compare the Cabbage, Radish, Broccoli, Onion, Turnip, Potatoes, &c. Or compare the cereals, Corn, Wheat, Rye, and Oats. There is no law of more general application than this, that the health, vitality, and hardiness of a plant depends upon the amount of heat it absorbs, the intensity of which is in proportion to its color, and this is in the ratio of its positive electrical force. We believe, by observation, that no permanent improvement can be made in the production of new varieties without strictly adhering to these laws of development.

There is some fruit, however, of great excellence, of rather a negative character, which is worthy of cultivation until we produce better sorts. It should be our aim to take advantage of their natural defects, by proper cultivation and training which we may be able to illustrate at some other time.

GRAPE CUTTINGS FROM HISTORY.—No. 2.

BY JOHN S. REID.

Asia, being the birthplace of mankind, may also be called the mother of the grape-vine. Here was laid out the garden of Eden; here was horticulture first practiced; here was formed many of the greatest empires of the world; here Noah built the ark, and here it rested from its long voyage on the waters; here the Tower of Babel was built, and here was the confusion of language, and the dispersion of mankind; here the Chaldean monarchy was founded, and the great city of Babylon laid out, with its hanging gardens, and its brazen gates; here was the home of the patriarchs, Abraham, Isaac and Jacob; here is the promised land, and here to, was the birthplace of the great Messiah, his life, and triumphant ascension.

No other quarter of the world has so many glorious associations clustering around it as this; and when we add, that Asia was the mother of civilization, of arts, of science, of literature, of all that enobles man, and makes him almost equal to divinity, blame us not if we give her the honor of being the first to cherish and cultivate the the grape, and apply its luscious juice to the manufacture of wine.

If we cast our eye over the map of Asia we will discover ranges of mountains, where the Vitis Vinifera may be seen growing in all its luxuriance on their southern slopes; but it is chiefly in the balmy region between the Indus and Oxus, the Euphrates and Persian gulfs that the vine flourishes in all the richness of its native clime. Here they not only grow the most luscious of berries, but they make the most aromatic of wines; and although the religion of Mahomed condemns the use of wine, or strong drink, as it is sometimes called, yet very few of the faithful refuse a cup of the sparkling Shiraz. We do not know the exact time when the grape was first introduced into Persia. Our opinion is, that it is a *native* of that country, growing spontaneous on the hill sides, and transplanted to to the gardens and vineyards in the valleys, by the rich and the noble.

They are said to be among the finest in the world—suitable either for the table or the wine press. Near Shiraz, some other varieties are cultivated, from which wine of a most excellent quality is made. Some species are black, some red, some of a golden color, whilst a small white grape, almost

without seeds, which grows in the Island of Kishmish, is most esteemed for wine, and it is asserted that it was of this celebrated variety which the Schah of Persia once sent a present to the King of England. In making wine, the Persians tread the grapes in a vat, in the bottom of which are small holes made to allow the juice to escape. It is then transferred to glazed earthen jars, which are placed in a cool cellar, where fermentation takes place. At the end of one month the wine is drawn off and strained, and placed back again into the jars, until it is deemed fit for bottling; when it is put into glass flasks, holding about forty quarts, and there kept ready for sale, or use. Some of the wines of Persia are of a bright amber color, whilst others are red, not unlike our Claret or Bordeaux. The white is of a more delicate quality, rivaling our most choice Rhine. In size of bunch and berry, they are both large; some of the latter being a fair mouthful, whilst some of the bunches weigh twenty pounds. In the province of Cabool, grapes are so plentiful, that the cattle are fed with them—commanding in the market only two cents a pound.

Here also grows the Orange, the Pomegranate, the Date, Peach, Apricot, Cherry, and other choice fruits. The Lemon also is found to grow very plentifully in the mountain vales, with the Fig and Almond tree covered with fruit.

Of grapes, there are ten different kinds grown in Cabool, some of which are raised on frames, not unlike our trelises, whilst others hang from low bushes, or creep on the ground. They are watered during the month of April, and pruned in May, ripening a little earlier than our Delawares or Catawbas.

There are three kinds of wine, which claim superiority over all others. Such as the wine of Shiraz, used only by the Sovereign, or nobles; that of Yezd, a very delicate white wine; and that of Ispahan, distinguished for its delicious sweetness. Odafiz, the Persian Anacreon, sings voluptiously the praises of the Grape, and many of his beautiful similies and figures are taken from the vines.

Several fanciful opinions are formed in Persian history, as to the origin of wine, or who in that country was its discoverer. Ferdusi, who flourished in the 14th century, contends that one of their earliest Kings, who reigned over that kingdom, about six hundred years after the Flood, was the fortunate discoverer; and affirms, that he being a lover of grapes, and anxious to preserve some for future use, after the vintage was over, placed some of his most luscious kinds in stone jars, and put them in a vault. Afterwards, when opened, they were found so acid and disagreeable to the taste, that the King believed they had been poisoned, and wrote upon the jars, *poison*. Afterwards one of the ladies of the Harem, becoming unwell, and being almost distracted with pain, in order to rid herself of life, drank of the fermented juice, secretly; but strange to say, instead of it killing her, she felt much better, and continued to drink of it until the whole of the poison was drank up.

Her recovery being well known among the ladies of the court, an enquiry as to the cause, was soon instituted, and she confessed to all that she had done; whereupon the King commanded a double portion of grapes to be again so placed in the jars, and when fermentation had properly been made, and the liquor purified, he and his whole Court drank of the new beverage; and it is still called by all the ladies of the Harem, as the "delightful poison." So much for the origin of Wine in Persia.

In our present description of the grape of Persia, we have embraced an area of country known under this name, in the days of its glory, when Persia was one of the great empires of the East; when the Oxus, the Indus, the Caucasus, and the Tigris were her borders, ranging from latitude 25° to 40° north, and which appears by history, to be one of the most fertile regions of the earth.

Our next remarks will cover Arabia Petrea, and the Holy Land, in which we shall attempt to trace the history of the Vine, from the time of Abraham, to the destruction of the Temple by Titus, in the year A. D. 70, when the power of the Jews as a nation was forever destroyed, and their land became for many years, what might be termed a desolation and a barren waste.

HOME CUTTINGS.

The weather during the months of January and February has been cold, with almost continuous snow, alternating with sleet, so that these months have been rather severe for our small fruit, (except Strawberries.)

I had covered all of my finer grapevines, and think that this protection may save them from the frost. The thermometer was as low down, once, as 10° below zero, but generally steady at 2° above. I examined some of my peach buds, and they are sound. My grapes which stand in the open vineyard, are not destroyed, but several of them look sickly, will know better their true condition after the March winds have dried the earth, and the sun of April awakens the young buds from their slumber of winter, then I may again report.

Indiana, February, 1865.

FRUIT CULTURE IN SOUTH JERSEY

TEN or twenty years ago, if a cultivator of Fruit, either as an amateur or for market, had turned to the then unbroken wilds of South Jersey, to establish a fruit farm, he would have been deemed a fit subject for the mad house, and would have been told that this whole region was but sterile Sand Banks, where even mullens would wither and die; and even now, when Yankee enterprise has brought the wilderness to blossom like the rose, with thousands of fruit farms, strangers attracted thitherward, are told by intelligent Philadelphians and New Yorkers, that "*nothing will* GROW *in Jersey*," forgetting that a large proportion of the finest fruit found in both New York and Philadelphia markets, is grown in Jersey sands.

Four years experience and observation, has convinced me that this section of New Jersey, (say from Camden to Atlantic City, on the line of the Camden and Atlantic Railroad,) is one of the very best locations for growing fruits of all kinds in the United States. Many thousands of acres of land can be purchased at such rates as to make it desirable for all, whether rich or poor, to locate here. The nearness to the great markets—a sandy, loamy soil, with a strong clay sub-soil, free from stones or waste places, slightly rolling, sufficient for drainage, with abundance of marl and muck beds, to place the whole section of country in the highest state of fertility. The soil is warm and quick, and at this point, Hammonton, thirty miles south-east from Philadelphia, we are several degrees warmer than at Philadelphia. The winters are short and open—snow seldom falling but a few inches, and remaining on the ground but a few days. The lowest that the thermometer has ranged in four years, has been at zero. We have had more cold weather the winter just passed, than any in the recollection of the oldest inhabitants. Fruit buds are seldom killed, and the everbearing mulberry of Downing, does not have to be covered.

Much attention has been paid to the culture of small fruits, and many hundred acres of Strawberries and Blackberries have been planted. Of Strawberries, the varieties which have mostly been cultivated, are Wilson's Albany, Triomph de Gand, May Queen and Boston Pine. Now, the Agriculturist, Brooklyn Scarlet, Mon-

itor and Russell's Prolific are being planted. I think the Wilson has less acidity with us than further north. The average amount received from the strawberry crop is $200 per acre—picking, with us, for market commences about 1st of June. The blackberry seems to thrive most luxuriantly with us, and the yield to the acre is enormous. The Lawton is most generally cultivated, either for wine or market, although some prefer the Dorchester as a market berry, as it is a week to ten days earlier than the Lawton. The average receipts for blackberries last season, was $250 per acre where the fruit was marketed, and when made into wine, the product was at the rate of $600 per acre.

A sample of Blackberry Wine, recently tested before the Farmer's Club of New York City, made here, was pronounced *very fine.* It is claimed that both fruit and wine, grown and made here, is superior to any other section of the country.

Considerable attention has been paid to the culture of the Grape, all through this section, and we claim that ten years hence, we shall be one of the greatest wine producing districts in the United States.

On the coast, the Isabella and Catawba are cultivated largely, with general success —are said to be free from rot or mildew, and hold their foliage up to the close of the season. At Egg Harbor City, a German settlement, the Isabella, Catawba and Norton's Virginia are being extensively cultivated. I am informed, that a wealthy association of intelligent Germans, have purchased some twenty thousand acres of land near us, for the culture of the Grape, and Wine making. With us the Isabella, Catawba, Concord, Hartford Prolific, Delaware, Diana, and Clinton have been planted. The Concord is being more extensively cultivated with us than any other variety. The Delaware has proved with me a strong and vigorous grower, and all that is claimed for it, *the best native grape in America.* The Delaware has mildewed but slightly with me. Last season it began to color on the 1st of August, and was fully ripe by the 25th. The Diana has proved with me next to the Delaware; bunches solid and compact—a strong grower, and free from mildew or rot. The Union Village promises well, and I hope will prove well adapted to our climate. The Anna mildews very badly with me, I not having been able to fruit it. The Concord with us is a very vigorous grower, and a great bearer, but some seasons it has rotted badly. The Hartford Prolific and Clinton do well with us. My vines were struck with mildew badly, 1st of July, 1863, and but slightly in 1864. I discovered the mildew on my young vines last season, on 15th of July. If the experiments of "Horticola" prove a success, he will have conferred a lasting benefit upon the vine growers of the United States. We have not been troubled much with the rose bug, or thrip, but the curculio paid us a visit last season. The Peach grows with us finely, and if we can get rid of the borer, would prove one of our best paying crops. Standard and Dwarf Apples and Pears do well with us, and intelligent fruit growers from all sections of the country say, that they never saw more thrifty or healthy young trees than what they have seen all through this section.

The winters are so short and mild, that any of the above vines do not have to be covered. Ploughing can be done generally every month in the year, and in such a climate with the right kind of soil, and enlightened culture, this whole section of our State is destined to be *the* fruit garden of the United States. S. B. N.

Vine Cottage, Hammonton, N. J., April, 1865.

CULTURE OF THE PINEAPPLE.

BY GEO. N. STACK, GARDENER TO JOHN BRIDGEFORD, ESQ., ALBANY, N. Y.

VERY few places seem to have the Pine-apple. Why is it so? Their culture is as simple as growing strawberries. I think the answer is simply this: expense and ignorance. The former caused in the labor, burning of fuel, and the laying out of money without receiving the benefit of such, and the latter, in lack of judgment or experience on the part of the gardener. There are some places in which no large amount of expense is incurred, and a good supply of fruit obtained; and others on the contrary, cause such extravagant expense that it is enough to frighten any person out of the thought of growing them. Hoping that I will be able to throw some light on the subject to those who are not experienced in their culture, I offer the following suggestions, fully confident that if well attended to they will give general satisfaction:

To grow the pineapple to its greatest perfection, it requires a house suitable for that purpose, such a house should be constructed so as to admit all the light possible to the plants. A three-quarter span 60 feet long, 14 feet wide, (with a pit in the centre 8 feet wide, filled with tan to the depth of 16 inches, and an avaporating tank underneath, having a gradual slope with the roof not more than 4 feet from the glass,) and partitioned off into two departments of 30 feet each, will form a very commodious house; admit plenty of light, easily heated, and each department will hold from 60 to 70 large plants.

SOIL.

Five parts good turfy loam chopped into pieces about the size of a walnut, with one part well decomposed leaf mould, and one part sand thoroughly mixed, forms a compost well suited to the growth of the pine-apple, and in which its roots will travel very fast, regardless of danger as far as the soil is concerned.

KINDS TO GROW.

The varieties of the pineapple are numerous, but few however merit general cultivation. The following I recommend as deserving of all care and expense that may be bestowed upon them: Broad leaved Queen, Black Jamaica, New-Providence and Antiguas. There are others of very good quality, but the above named varieties are all first rate.

PROPAGATION.

The pineapple is propagated from suckers, gills and crowns; some kinds are generally backward in producing suckers, such as Providence plants; when such is the case plants should be turned out of the pots, (as soon as done fruiting of course) and a few of their lower leaves cut off, the rest, cut in rather close, and about three inches of the old stump cut off and potted in 32 sized pots, and treated as suckers, when they will produce two or three good suckers. By this method all shy breeding sorts may be increased.

CULTURE.

Having got all suckers, gills, or crowns that are wanted, place them in a convenient place in the pine house under the full exposure of the sun, for about a week, after which pare the stump and cut away all the lower leaves that are necessary, so as to fasten the plants in the pots, and pot them in pots according to their sizes, the largest in 32 sized pots, and the smaller into smaller pots. When potted plunge them in the tan bed up to the rim of the pots, with bottom heat of 80°, syringe over head about twice a week. As soon as the sun is going off the house is the best time for that purpose. Do not give water at the roots until they have reached the sides of the pots, and in future as they are in need of it.

As the season declines, lower the tem-

perature. The temperature for winter should be between 55° and 60° by night, and should not exceed 80° by day. In the latter part of March or early in April, turn the plants out of the pots, and cut away about two-thirds of their roots; pot in the same sized pots and plunge back in their former position, keeping them rather close, but not allowing the temperature to exceed 90° for a few days, until they have again taken root hold, when they should be watered more freely, the temperature gradually increasing. I have known the temperature to rise to one hundred and fourteen, the thermometer covered, without the slightest injury to the foliage. As the season advances, sprinkle the plants over head more frequently; in very hot weather every other day. About June they should be potted into 16 size pots, balls entire. This time the tan will need cleaning, and a fresh supply added to it. This done, the plants should again be plunged. About August give them their final shift in 12 sized pots, and when potted the soil should at the very least be one inch below the surface of the pots. The plants having received their last shift should show fruit in September. As the season declines, the temperature should be lowered as previously directed, and in bright sunny days, syringe about twice a week, to take the mouldiness of the fruit, which is caused from the humidity of the atmosphere. About February, the fruit will begin to color, when the temperature should be raised to 65° and 70° at night, and may reach 100° by day, without injury, and in April, the fruit will be fit to cut.

Growing the pineapple in beds of soil is not much practiced, but by this mode, fruit can be obtained almost every month in the year, on account of the old plants producing suckers in every stage of their growth. The objections to this mode is, that the fruit is not so large as when grown in pots. When this mode is resorted to the pots should be filled with soil, which need not be more than one foot in depth, and the plants planted 16 inches apart in rows arranged alternately.

FERNS.—No. 1.

In traversing the country during the months of Summer and Autumn, the eye of the traveler is irresistibly attracted by the extreme beauty of a class of plants which adorn the road side, banks and rocks, fringing the sides of the rivulet with their graceful drooping foliage, or clothing stone-walls, bridges and rocks, with a living verdure of rare beauty. Along the broad margin of the mountain stream, or in the fair green glades of the pleasant woods, these magnificent groups of tufted Ferns may be seen, whose finely cut leaves, of a most vivid green, rising sometimes three or four feet in height, might form a coronal for a forest monarch, glorious in form as in hue. Perhaps, if the ground happens to be marshy, close by these splendid tufts of Fern, the wanderer may find a regal plant indeed; the *Osmunda regalis*, throwing up its feathery foliage in clusters of branching leaves, from six to ten feet high, which spring straight from the root, dividing as they ascend, into what look like branches, but are in fact divisions of the leaf, called *pinnæ*, which droop with a graceful curve earthward. Some of these pinnæ are terminated by a sort of fingered point of a brownish hue, and of a singular and beautiful appearance.

"What is it?" ask the uninformed who sees it for the first time. "Can it be the eggs which some insect has deposited there? Can it be blossom or seed?" And the like questions he will ask when he gathers two or three leaves, or *fronds* as they are termed, of any other of the various kinds of Ferns

that he meets with in his woodland or mountain ramble, and finds them closely beset on the back with grey or brown spots symmetrically arranged; some down the mid-rib of the leaves, others around the margin of each leaflet; while again on others a mass of this brown substance extends over the whole surface of the leaf.

Perhaps a few very simple rules may aid those who have been delighted with the beauty of the Ferns which adorn their pathway, and as yet are ignorant of the structure of this interesting tribe of plants, to discriminate between their various species, and to view them with other interest than that with which the mere superficial observer looks at them.

"How mhy we know a Fern from any other plant?" is a question more frequently asked than well answered. It is sometimes replied, and very naturally, if not very correctly, that ferns are plants with very large leaves that grow in moist places. It is true that there are some large leaves which grow in moist places, which are ferns The great Shield Fern (*Lastrea Feliz mas*,) the Brachen (*Pteris aquilina*,) and some others may be mentioned. But there are also many large leaves which are not ferns, and moreover there are very many ferns which neither grow in moist places, nor have large leaves; for some are so diminutive that their organs and fructification can only be determined by the aid of a microscope, the whole plant often not being an inch long. Ferns of this description are usually found on walls and rocks, some growing out of the driest mortar in the chinks of old walls, and others beneath the dash of the waterfall, on crags, and inaccessible rocks and cliffs.

Loudon gives two distinctions which prevail between the Fern and plants of other orders. The first is "found in the situation of what is called their *Sori*, or patches of reproductive organs, which are in all cases inverted on the back surface of the leaf or frond, sometimes appearing only in the form of little spots, sometimes covering the whole of the under side of the frond, and sometimes contracting the substance of the frond, so as to give it the appearance of a single mass of fructification." The other distinction is, that "the fronds are always rolled up in a circular manner when they are first developed.

Most observers will have noticed this singular appearance of the young leaves of the ferns in the spring, especially that of the great Shield Fern, whose brown hairy stem when thus beginning to appear, looks like a large brown caterpillar rolled up, and as it developes, assumes the form of a crosier, or shepherd's crook.

The whole tribe of ferns—natural order, Felices—is divided into two parts. The first includes those whose thecæ, or little masses of seed vessels, are provided with an annular ring, by the operation of which the caps containing the seeds are torn asunder and the seeds dispersed: these are called *Annulatæ*. The second includes those which have no such provision, and these are called *Exannulatæ*. The "Flowering Fern," (Osmunda regalis) the "Moonwort," and the "Adder's Tongue" belong to this latter class, while nearly all the other species are to be included in the former. This class, the Annulatæ, is subdivided into two sections. In the one the thecæ are attached in masses to the back of the frond; in the other they are placed in a receptacle situated on the margin of the frond. Each of these two sections contains within itself several families, determined by different circumstances connected with the placing, form, and other variations of the thecæ and their coverings.

Now let us see what are the different parts of a Fern. Each has, first, a root, secondly, a part which connects that root with the fronds, and out of which they spring, which is called the Rhizoma, and is that which in the tree fern forms the trunk; and thirdly, the fronds or leaves. The frond consists of a stem extending from the rhizoma, quite to the apex of the frond, and this is called the *Rachis*. On either side of the main stem, the leaflets, or other ar-

rangements of the foliage are disposed. In some ferns the frond is pinnatefid, that is, the little leaflets are not quite divided from each other. Others are pinnate, that is, having the leaflets quite separate. So variously are the leaflets of the different species of the fern cut and arranged, that it would take too much space to enumerate them.

But though many species of fern may be discriminated at first sight by the form of the leaf, the growth, &c., it is by the venation, and the arrangement of the fructification, that their families and species can alone be determined. The seeds of ferns are not preceded by any visible flower. They are generally produced in the back of the frond in capsules, called thecæ, which are clustered together in little masses situated on the veins at the divisions of the fronds, or on their margin.

This arrangement of the fructification on the back of the frond, seems universal in all the families of the Annulatæ. A few words on the fructification of the other division, the Exannulatæ, and our review of general characteristics will be ended.

The reader will remember, that the distinction between the two divisions is, that the Annulatæ are provided with an elastic marginal ring, to assist in dispersing the seeds, and that the Exannulatæ are devoid of this appendage. Plants of this latter division have their thecæ in a spike, either branched or clubbed, and attached in some species, to a separate frond; in others terminating the leafy frond. Of such arrangement as the last named, is that noble plant, the Flowering Fern.

"The apex of the frond of the osmunda," —says Newman—"is composed of a complete cluster of spikes; these spikes correspond to *pinnulæ*, of which only the mid-vein and a slight marginal ring is present, and to each of the lateral veins, is attached a nearly spherical mass of thecæ; these spherical masses entirely supersede any leafy portion in pinnæ so converted. Frequent instances, however, exhibit the base of a pinnula in a leafy or barren, whilst the apex is in a fertile state." It is not, however, every leaf that thus terminates. Some are barren fronds, and they preserve their leafy appearance to the summit of the frond. Of the first division, are the Moonwort and the Adder's Tongue. In the former, a little branched spike of fruit is joined to a pinnate frond, these two members forming the whole plant, which is not usually more than four or six inches in height. The latter consists of a straight spike of fruit issuing from the interior surface of the frond at its base, usually longer than the leafy part, and bearing the thecæ in a double longitudinal row.

The power which ferns possess of multiplying themselves is almost incredible. The Hart's Tongue, which is by no means a large plant, or possessed of a peculiarly high power of reproduction, bears on each leaf—according to Lindley—about Eighty Sori. Each of these consists of from three thousand to six thousand thecæ, each thecæ containing about fifty spores; so that, by a moderate calculation, a single leaf of the plant may produce not less than *eighteen millions* of young plants!

We have endeavored to make this sketch of the general and leading characteristics of the Fern tribe as simple as perspicuity would allow. Still we are aware that to many who have no previous knowledge on this very attractive subject, much that we have said may seem difficult to understand, while we are also aware that to those who have made this interesting branch of the vegetable creation their study, it will be evident that we have given but a rudimentary and imperfect account of the structure of the tribe, and left out much which, but for the fear of overloading and confusing the subject, we should have said. We hope, however, that these few elementary hints may help any one who reads them with attention, to know a fern when they see it.

In the northern parts of the world, ferns are green, leafy productions, which die down to the ground every year, some yielding sooner than others to the influence of

the seasons, but all being renewed from the base of the plant annually. In tropical countries, however, this is not the case. They acquire real trunks, resembling palms, and often rise to the height of forty or fifty feet, without a branch or leaf. Then they throw out masses of most graceful foliage, which wave like feathers in the air, their leaflets being of the most exquisite form and regularity of arrangement. Many of the tree ferns are of great interest, both on account of their beauty, and also of peculiarities in their structure. One of them, the Aspidium Baromez, has formed the ground work for many fables, and ignorant people have been induced to believe that, in the deserts of Scythia, creatures, half animal, half plant, have been produced. This deception has been contrived by cutting off all but a small portion of the stem of a woolly-stalked species, and turning it upside down, when it presents much the appearance of a small animal. It has been called the "Scythian Lamb," and Loudon tells us that the belief in its animal nature, has been increased by the circumstance that the color of the juice of this plant is of a rich bloody hue, which soon becomes thick by exposure to the air.

In the carboniferous strata are found fossil ferns of arborescent kinds, such as do not now exist, and of immense magnitude, some of them appearing to have reached the height of more than eighty feet. The fructification of these extinct species, as well as of the arborescent ferns now existing, is arranged on the same principle as that of our smaller species.

RAISING SEEDLINGS.

BY J. M. MERRICK, JR., WALPOLE, MASS.

Although I had been affected for two or three years with that incurable epidemic, the grape fever, it so happened that I never saw the Horticulturist till last January. I was delighted with my new acquisition, found myself in congenial society, and subscribed for the magazine at once. I was especially pleased with Mr. Fuller's remarks about raising vines from seed, for I could sympathize with him when he spoke of the interest with which the little spindling plants are watched, the care with which they are tied up and trained, and the cheerfulness with which a thousand failures are borne, for the sake of one partial success. For the last three years I have been planting seed and raising vines to an extent which has caused my sanity to be doubted by my friends, who regard the grape mania as belonging to the same class of delusions as the *morus multicaulis* humbug, or the famous Tulipomania in Holland. They prophecy that as soon as the crisis is passed the whole thing will cease to interest anybody, and will vanish like a dream from men's minds and thoughts. I think differently, and therefore I am persecuted. Every extra hot-bed I set up is looked upon with suspicion; the purchase of a few hundred thumb-pots is a wild extravagance; and a little natural enthusiasm in favor of the Iona and Agriculturist, is regarded as the last flicker of expiring reason. However, I keep on, and have got quite a stock of seedling vines, from which I promise myself a great deal of comfort and satisfaction quite willing to be laughed at, and to leave unanswered ironical inquiries as to the probable epoch when the "Great American seedling" will appear.

My experience, as regards the time required for the germination of grape seeds, has already been communicated to the *Country Gentleman*, but I may venture to insert some facts here, as I should be very glad to compare notes with some one else who has made the matter a specialty. I never have succeeded in making an Isabel-

la or a Rebecca seed germinate, although I have planted large quantities. Catawba seed comes up sparingly the first year, and here and there a solitary plant the second. Delaware seed comes up reluctantly, but generally makes good plants the first year. I have planted Concord seed twice, and with very different results; first, I planted whole grapes in October, and not one seed in fifty came up. Last year I planted, in April, a vast quantity of the naked seed, and in June every seed, I should think, came up. Native grape seed from wild vines comes up pretty well the first and second year. In my experiments, perhaps in all, half the seed (native) germinated. Seed from Rogers 19 comes up in rows with about as much certainty and regularity as peas or beans. This fact seems to be derived from the great vitality and energy (so to speak) that the number 19 in common with others of the same list, possesses, and seems to me to form one link in the chain of evidence which shows these vines to be true hybrids. Will some reader of the HORTICULTURIST give us his experience in raising vines, so far as the length of time required for the seed to germinate is concerned? and will he state also what means he used, if any, to hasten the seeds in coming up? Last summer, owing to the dry weather, was very unfavorable for raising young plants. I lost several hundred Concord seedlings; and those I did save were painfully transplanted one by one into three inch pots, put under glass and watered every day to give them strength enough to live over winter. The results that have thus far been obtained by raising seedlings after the method of Van Mons, and more especially by hybridising, have excelled and surpassed all that could have been anticipated or even hoped before-hand, and it seems to me to be almost the duty of every lover of good fruit, to plant at least a few seeds, and contribute his mite towards the general improvement.

The trouble, when a new variety is obtained, seems to be that the old proverb holds true, about everybody's geese being swans. Even if a man digs up a wild vine in the woods, and plants it in his garden he is apt to consider it of first quality, *because* he dug it up, and if you were to give him a vine growing six hundred feet in a season, and bearing grapes as large as the Black Hamburgh, and as good as the Delaware, he would fail to see that it was better than his.

The ingenious Mr. Samuel Weller, of facetious and immortal memory, remarks that when we say a man has taken to building houses, it is a delicate way of saying he is insane. Some people, now, have a similar saying, except that they use the words "planting grapes" instead of "building houses," but in the March HORTICULTURIST I came across a most refreshing sentence, viz: "Every enthusiast in fruit culture deserves a vote of thanks from the whole people;" and I immediately passed a vote of thanks to myself, and determined to write to the HORTICULTURIST to say that I had done so.

I am not familiar with the newest varieties of grapes to decide whether our most brilliant triumphs heretofore have been gained by planting after the method of Van Mons, or by hybridization; but, however the matter now stands, I am fully convinced that the perfect grape, when it does come, will be a hybrid artificially produced by some painstaking man who settled in his mind what he would have before he planted a seed.

I allude to hybrids here because I wish to ask some experienced horticulturist to tell us, through the columns of this journal what pairs of grapes and of strawberries he would select for crossing with each other. I desire his views especially in regard to strawberries.

Perhaps Mr. Parkman, whose paper in the April number helps to make that the best thus far this year, (I do not say makes it perfect, for the May number with *my* article is coming) could answer this question in a satisfactory manner.

Impatient people sometimes raise the objection against planting seedlings, that "it will take so long for them to come into bearing." This argument reminds me too strongly of my youthful days, when my father gave me a little garden of my own, wherein I used to plant beans one day and dig them up the next, to see what progress they were making, and I tell the objector he forgets that if he sows seed now in only three years he will have vines in bearing, and each year thereafter he will have a fresh crop of plants, (provided he has planted regularly every season) each one of which will develop new points of interest among which will be (unless somebody else gets it first) the Great American Seedling.

GROWING CRANBERRIES.

We have heard much and printed much in the *Telegraph*, relative to the growing of cranberries. An effort has been made to show that cranberries can be profitably grown on uplands—that is, without the assistance of water, swamps, or overflowing; and though several instances were given of success, we still hesitate to believe that they could be cultivated on such land with sufficient profit to make it an object. But where there is water to overflow at proper times, or even the ground be naturally moist throughout the season, there is little doubt but that the cranberry can be made one of the most profitable crops grown. Thousands of acres in every State of the Union, now lying worse than idle, could be transformed into the cultivation of this fruit, which would add more to the common exchequer of the farmer, than four times the amount of his best ground, in the ordinary crops. The following instance of the reclamation of a worthless swamp, in Franklin, Massachusetts, will open the eyes of some of our readers:

Something like ten years since, this swamp was covered over with a growth of alders, dogwood, white maples and other swamp shrubs, which covered the ground; they were cleared off, and a ditch cut through the swamp for the brook, which before ran through a very crooked channel. Ditches were then opened from the uplands on each side, which are gravelly and sandy, leading into the main ditch. A dam was constructed across the swamp, which serves the purpose of flowing it and also that of a road to pass across it. In the winter the swamp was usually flowed, and gravel, this being better than sand, was drawn on to the ice and spread.—Afterwards it was planted to cranberry cuttings, in drills about eighteen inches apart, this, from experience, proving to be a suitable distance apart. How many coverings of gravel have been put on, was not learned; but several, judging from the excavations whence removed.

About twelve or fourteen acres of this swamp have been planted; and so favorably is it situated, that it can be covered with water in a little more than an hour's time. The brook is of such capacity, with the aid of a reservoir above the cultivated ground that the plants can be protected from frost at any season when there is any danger.

The crop of the past season was about 1,100 barrels of very nice fruit, and of remarkable size. I brought away a couple of berries that measured nearly three inches in circumference. The crop was all picked by hand, at a cost of nearly $2,000. At one time two hundred persons might have been seen in that swamp picking cranberries. It was a lively scene. After they were gathered, they were taken to the house, where they were sorted, that is to say, the soft berries, after winnowing them, were culled out by women and girls, preparatory to barreling.

The fruit has generaly been sold so far as it is marketed, at the current price, though some of it was sold for $15 a barrel. Call

the average price $10 a barrel, and 1,100 will bring the snug little sum of $11,000. This beats tobacco-raising out of sight, as the saying is.

One of the peculiar advantages possessed by this over most of swamp lands, is, the facility with which it can be flowed at all seasons of the year, thus guarding the growing crop from both late spring frosts and early autumn frosts; and besides, gives the power to destroy insects that sometimes infest the vines. Swamp lands that can be quickly flowed and quickly drained, cannot be used more profitably than by growing cranberries, as it would seem by this experience. It is also easily graveled in the winter by flowing it.—*Germantown Telegraph.*

EDITOR'S TABLE.

To Contributors and Others.—Address all Communications, for the Editorial and publishing departments, to Geo. E. & F. W. Woodward, 37 Park Row, New York.

Woodward's Graperies and Horticultural Buildings will be ready early in May, about as soon as this May number is in the hands of our readers. This work is a practical and comprehensive one, discarding all theories and exploded notions. It aims to give in a concise manner, all the needed information on all classes of Horticultural Buildings, from the hot-bed to the most elaborate structure, and is the result of a long professional practice in the construction and personal management of such buildings.

Newburgh Bay Horticultural Society.—The summer exhibition of this society will take place at Newburgh, N. Y., on the 15th and 16th June, 1865, and the Fifth Annual Exhibition on the 27th, 28th and 29th days of September, 1865.

Free Missouri has now organized a State Board of Agriculture, with the following officers:

President, Henry T. Mudd, St. Louis Co.

Vice-President, Geo. Husmann, Gasconade Co.

Treasurer, Fred'k Muench, Warren Co.

Members, Dr. George R. Buckner, St. Charles; Gert. Goeble, Franklin; Francis Kellermann, Washington; Dr. L. D. Morse, St. Louis; Barnabas Smith, Crawford; M. T. Essex, St. Louis; Chas. A. Newcomb, Jefferson.

Secretary, John H. Tice, St. Louis.

Corresponding Secretary, Dr L. D. Morse, St. Louis.

March 15, 1865.

Stout's P. O., Adams Co., Ohio.

The soil here is a dark rich sandy loam, particularly adapted to the growth of fruit and grapes. Peaches frequently weigh from 12 to 16 oz., and there are Peach trees here that have borne peaches for 30 years. The elevation of our hill tops above the level of the river is over 700 feet. Let me give you for the information of your readers, an improvement in raising Tomatoes: in place of allowing the tomato to branch as they usually do, tie them up to stakes, keeping all the branches pinched off. In this way they will produce more and better tomatoes than by any other mode of cultivation.

Yours truly,

Dr. Ira A. McConnell.

TOLEDO, OHIO, April 9th, 1865.

Messrs. WOODWARD—I have some twelve acres of Grapes coming into bearing the ensuing summer. I am somewhat in doubt as to what procedure would net me the most: selling them in boxes, or making into wine. I have ten acres planted with Catawba, and two with Delaware. My vineyard is situated on Put-in-Bay Island, Lake Erie; we think this and the adjoining Islands the only places where in this latitude the Catawba becomes *perfectly* ripe. I was much amused at the *net* results of the product of Delaware and other varieties in the March number of the "HORTICULTURIST," especially the 1-3 acre producing $3,000 worth of plants, at a cost of only twenty-two dollars. If it did not cost them more than that amount in *cash*, the labor was expended somehow, and I *know* that with present prices of labor I could not raise the same number of layers for the sum named. Should you ever be in want of estimates of expenses of raising grapes, as we find it on the Island, I will give the figures, and I trust those that will not lie.

Yours truly,

L. L. LUNGREN, M. D.

We should be glad to have your figures. —EDS.

LA CRESCENT, Minn., Apr. 4th, 1865.

Messrs. WOODWARD,

I should be pleased to have you invite the author of "Notes, &c. on fruit culture in the Western States" to favor us with the article which he has promised if desired, pointing out some of the most desirable localities for fruit growing at the West, and the varieties that promise best returns; also, the best soil, aspect, &c. Many people in this State profess to believe that fruit growing will prove a failure, but I do not believe it. I am starting an orchard on a south-eastern exposure; started with a few trees four or five years since, and added a few every Spring, and am happy to state, that they promise success. Therefore, any suggestions from western fruit growers add to the interest I take in your paper.

Yours respectfully,

JOHN S. HARRIS.

Messrs. GEO. E. & F. W. WOODWARD:—The remarks of your correspondent, in Feb'y number, concerning the Jonathan Apple reminds me that my attention was lately called to this apple, on a recent visit to Michigan, by Hon. Mr. Sprague, of Kalamazoo. He is an old resident of Michigan, and has paid considerable attention to fruit culture. He speaks in the highest terms of the Jonathan, and recommends it very highly as a hardy tree, and one peculiarly adapted to western demands. The specimens he showed me were handsome to the eye, and excellent to the taste.

Madison, Wis. W. A. P. M.

WEALTH AND SPLENDOR OF NEW YORK. —If the Californian wishes to realize the splendor of New York, let him start for the Central Park, from the huge palace of white marble on Madison Square, and mingling with the luxurious equipages, which are moving to and fro, drive up the Fifth Avenue. His coachman will have to wait a moment until that Cinderella-like pony phæton, with its occupants in ball-like costumes, passes, and that silver-embossed carriage with its coachman and footman in imperial green liveries turns the corner. On either side of him and as far as he can see down the streets which run perpendicular to the avenue, he will be astonished at the elegance of the mansions which house the merchant princes of the American Metropolis. Entering the park his eyes are no less charmed at the beauty of the design than startled at the outlines of the magnificent bridges over which he drives. Arriving at the splendid terrace which would be a feature in a royal palace, he descends

from his carriage and mingles with the crowd of gaily dressed people who are promenading to the sound of operatic music performed by an orchestra of sixty selected musicians, who are seated on a temple that is a miracle of painting and gilding. Descending the broad steps of the terrace, hardly observing the exquisite carvings of the stone ballustrade, he stands at last by the fountain underneath the embroidered scarlet silken gonfalons, suspended on poles, whose golden ornaments dazzle the eye. He walks to the beautiful stone steps of the landing, on the borders of the lake, and beckoning to one of the fancifully attired boatmen is soon the sole occupant, if he chooses, of a brightly-painted shell that is delicate enough to carry Venus and Cupid. Reclining on the silver cushions he floats on water that is as limpid as crystal and watches the brilliant panorama before him, or plays with the graceful swans, who are tame enough to bear his caresses while his senses are scattered with a luxurious repose by the soft strains of the music on the one side and by the murmurs of a lovely little cascade on the other. If he is a New Yorker, by birth, and returns after an absence of ten or twelve years, he will find it difficult to realize that this scene of Fairy-like enchantment was the odious quagmire, whose lots even his enthusiastic predictions of future value could not tempt even a Dutch grocer to buy. As he floats around, in one place, he will say with Tennyson—

"There lies a vale in Ida, lovelier
Than all the vallies of Ionian hills.
The swimming vapor floats athwart the glen,
Puts forth an arm and creeps from pine to pine,
And loiters slowly drawn. On either hand
The lawns and meadow-ledges midway down
Hang rich in flowers, and far below them roars
The long brook fallen through the cloven ravine."

If he wishes to enjoy a crowning excitement let him float upon the lake, until the moon lights up the scene, and he will return to his hotel and wonder if he has been spending an afternoon and evening in New York.—*N. Y. Cor. California Farmer.*

BOOKS, &c. RECEIVED.

Our Farm of Two Acres, by Miss Harriet Martineau. This little book which first appeared in the columns of "Once a Week," has just been publisded by Bunce & Huntington, of this city, price 20 cents, paper covers. A personal narative of successful cultivation of small tracts of land in the vicinity of our large cities, is sure to find plenty of readers. More on this subject is always desirable.

The Preparation and Mounting of Microscopic Objects, by Thomas Davies, New York. Wm. Wood & Co., publishers, $1.50. A book much wanted, and which describes with care the apparatus, objects and mode of mounting them, covering the whole subject. Those interested in such matters will find this work a valuable aid.

Medical Student's Vest Pocket Lexicon, just published by Wm. Wood & Co. A great deal of valuable matter in a small compass.

Second Annual Report of the proceedings of the West Jersey Fruit Growers' Association, 1864 and 1865, containing a report on all fruits grown in West Jersey, by Nathan Leeds of Cinnaminson, chairman of General Fruit Committee. An address by Hon. Wm. Parry, President of the association, and an interesting article on "atmospheric humidity as a protector from cold," by James S. Lippincott, Esq., of Haddonfield.

Hovey & Co's Catalogue of Flower Seeds, with a supplement containing lists of novelties and select varieties.

Hovey & Co., 53 North Market Street, Boston.

Retail and Wholesale Price Lists of the River Bank Nurseries, Adrian, Michigan, Ramsdell, Loud & Co., proprietors, also No. 1 Descriptive Catalogue of Fruits, and Nos. 2 and 3 Descriptive Catalogue of Ornamental trees, Shrubs, Roses, Greenhouse, Bedding out Plants, Bulbs, &c.